U.S. ENVIRONMENTAL PROTECTION AGENCY
REGION IX

STATEMENT OF BASIS AND
AMBIENT AIR QUALITY IMPACT REPORT

For a Clean Air Act
Prevention of Significant Deterioration Permit

Navajo Generating Station
Low-NO_x Burner Project
PSD Permit Number AZ 08-01

October 2008

NAVAJO GENERATING STATION – LOW-NO_x BURNER PROJECT
Statement of Basis and Ambient Air Quality Impact Report
(PSD Permit AZ 08-01)

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Acronyms & Abbreviations

AAQIR	Ambient Air Quality Impact Report
AQRV	Air Quality Related Value
BACT	Best Available Control Technology
BART	Best Available Retrofit Technology
CAA	Clean Air Act
CEMS	Continuous Emissions Monitoring System
CFR	Code of Federal Regulations
CO_2	Carbon Dioxide
CO	Carbon Monoxide
EPA	United States Environmental Protection Agency
ºF	Degrees Fahrenheit
FIP	Federal Implementation Plan
GCP	Good Combustion Practices
LAER	Lowest Achievable Emission Rate
lb/MMBtu	Pound per Million British Thermal Units
LNB	Low-NO_x Burner
$\mu g/m^3$	micrograms per cubic meter
MMBtu/hr	Million British Thermal Units per hour
MW	megawatt
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NWS	National Weather Service
NGS	Navajo Generating Station
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxide
O_2	Oxygen
PM	Particulate Matter
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTE	Potential to Emit
RACT	Reasonably Available Control Technology
RBLC	RACT/BACT/LAER Clearinghouse
SCR	Selective Catalytic Reduction
SNCR	Selective Non-catalytic Reduction
SOFA	Separate Over-fire Air
SIL	Significant Impact Level
scf/MMBtu	standard cubic feet per Million British Thermal Units
NSPS	Standard of Performance for New Stationary Sources
SO_3	Sulfite
SO_2	Sulfur dioxide
H_2SO_4	Sulfuric acid
SRP	Salt River Project Agricultural and Power District
tpy	tons per year
USGS	United States Geological Survey
VOC	Volatile Organic Compound

This document serves as the Statement of Basis and Ambient Air Quality Impact Report for the proposed Prevention of Significant Deterioration (PSD) permit for the Navajo Generating Station – Low-NO_x Burner Project. This document describes the legal and factual basis for the proposed permit, including requirements under the PSD regulations at Title 40 of the Code of Federal Regulations (CFR) §52.21. This document also serves as the fact sheet to meet the requirements of 40 CFR Part 124.7 and 124.8.

I. APPLICANT INFORMATION

Applicant Name: Salt River Project Agricultural and Power District (SRP)
Facility Name: Navajo Generating Station
Mailing Address: P.O. Box 850, Page, AZ 86040

II. PROJECT LOCATION

The Navajo Generating Station (NGS) is located on the Navajo Nation Indian Reservation, approximately five miles east of Page off U.S. Highway 98, in Coconino County, Arizona.

III. PROCESS DESCRIPTION

A. Facility Description

The NGS consists of three existing coal-fired steam generating units, associated air pollution control devices and auxiliary equipment necessary to produce electricity. This facility has a combined power generating capacity of 2,250 net megawatts and became operational in stages between 1974 and 1976. Units 1, 2, and 3 are operated by SRP and co-owned by the following six entities: U.S. Bureau of Reclamation, SRP, Los Angeles Department of Water and Power, Arizona Public Service Company, Nevada Power, and Tucson Electric Power Company. The facility receives coal with a maximum sulfur content of 1.5% by weight from the Peabody Western Coal Company's Kayenta Mine. Light fuel oil, in accordance with the American Society for Testing and Materials grade 2 (commonly known as Fuel Oil No.2) serves as the ignition fuel for the units.

B. Project Description

SRP has proposed the Low-NO_x Burner Project as a voluntary measure to significantly reduce emissions of nitrogen oxide (NO_x) from all three boiler units at the NGS. The project involves the installation of Low-NO_x Burners (LNB) with Separated Over-fire Air (SOFA) systems over a three-year period (see schedule in Table 1). A LNB and SOFA system reduces NO_x emissions by controlling air and fuel flow to create fuel-rich and O_2-poor conditions in the burner, and stages the addition of over-fire air beyond the burner combustion zone to complete combustion in a lower temperature environment which reduces the formation of thermal NO_x.

The Regional Haze rules found in 40 CFR Part 308 will require NGS to install Best Available Retrofit Technology (BART) for visibility impairing pollutants. EPA is in the process of evaluating the NO_x and particulate matter emissions from this plant to determine BART for this facility. EPA plans to propose a revision to the Federal Implementation Plan (FIP) for NGS within a few months, to require the facility to meet emission limits achievable through the application of BART. EPA will promulgate the final FIP incorporating BART following the public review and comment process. The potential control technologies for NO_x reduction at this facility for BART include Low-NO_x Burners with Separated Over-fire Air, Selective Non-catalytic Reduction (SNCR) with ammonia injection, and Selective Catalytic Reduction (SCR). For this facility, LNB/SOFA will likely be part of any BART determination even if the final BART FIP requires further reduction using SNCR or SCR controls. BART is required to be installed as soon as practicable but no later than five years after promulgation of the FIP.

The early installation of the LNB/SOFA systems will not affect the baselines for cost or visibility improvements in the BART determination, and therefore will not influence EPA's determination of the proper NO_x reductions required to be achieved from BART.

While the LNB/SOFA retrofit project that is the subject of this permit will result in significant NO_x emission reductions, it will result in carbon monoxide (CO) emission increases. Due to the nature of combustion, boiler modifications to reduce NO_x emissions will result in incomplete combustion which increases CO emissions. SRP has determined that the CO net emission increase resulting from the proposed LNB/SOFA retrofits will be greater than the 100 tons per year significance threshold for CO under the Prevention of Significant Deterioration (PSD) provisions (see Section V), and therefore has submitted a PSD permit application for the project.

This PSD permit would grant conditional approval to SRP, in accordance with the Clean Air Act and the PSD regulations at 40 CFR 52.21, to modify each boiler by installing LNBs and SOFA systems in each boiler. If the proposed permit is finalized in 2008, one boiler will be retrofitted during each of the next three calendar years as indicated in Table 1 consistent with SRP's anticipated planned outage schedule.

Table 1. Low-NO_x Burner Project Schedule

Boiler Unit	Projected LNBs Operational Date	Max. Heat Input
3	March 22, 2009	7,725 MMBtu/hr
2	March 28, 2010	7,725 MMBtu/hr
1	April 3, 2011	7,725 MMBtu/hr

C. Air Pollution Control Equipment

The existing coal combustion equipment on boiler units 1, 2, and 3 will each be replaced with an Alstom LNB/SOFA system. The LNB will reduce the formation of NO_x emissions by burning the coal in a fuel-rich, reducing environment. This reduces the concentration of oxygen available for the reaction with fuel nitrogen and reduces flame temperatures to minimize the formation of thermal NO_x. The SOFA system will decrease the amount of incomplete combustion in the furnace and, therefore, also minimize the formation of NO_x emissions.

The facility will install a continuous emissions monitoring system (CEMS) in each stack exhaust to measure and record CO concentrations once the LNBs and SOFA systems are installed. The facility will also operate, maintain, and quality-assure a CEMS in each stack exhaust to measure NO_x concentrations according to the requirements of 40 CFR Part 75.

IV. EMISSIONS FROM THE PROJECT

As discussed in Section III.B, the LNB/SOFA system on each existing boiler will reduce NO_x emissions but will collaterally increase CO emissions. Pursuant to 40 CFR 52.21(a)(2)(iv)(*c*), SRP compared the baseline actual emissions to projected actual emissions in order to determine PSD applicability for this project (Table 2).

Table 2. Summary of CO and NO_x Emissions

Boiler Unit	Pollutant	Pre-Project Baseline Emissions [1] (tpy)	Projected Actual Emissions [2] (tpy)
1	NO_x	12,647	7,462
	CO	707	12,903
2	NO_x	11,660	7,462
	CO	659	12,903
3	NO_x	10,342	7,462
	CO	675	12,903

[1] Baseline actual emissions are based on average emissions from the NGS 2006 and 2007 emission inventory reports, which satisfies the regulatory provision at 40 CFR 52.21(b)(48)(i).

[2] The projected actual emissions are based on a representative 2-year period between 2014 and 2016 shown to have the highest utilization during the next ten years following the project, which satisfies the regulatory provision at 40 CFR 52.21(b)(41).

V. APPLICABILITY OF PREVENTION OF SIGNIFICANT DETERIORATION

The Navajo Generating Station is located within the Northern Arizona Intrastate Air Quality Control Region which is designated by the EPA as an unclassified or attainment area for all criteria pollutants: carbon monoxide (CO); nitrogen dioxide (NO_2); sulfur dioxide (SO_2); ozone, regulated by its precursors, volatile organic compounds (VOC) and oxides of nitrogen (NO_x); particulate matter with an aerodynamic diameter less than 10 micrometers (PM_{10}); fine particulate matter with an aerodynamic diameter less than 2.5 micrometers ($PM_{2.5}$); and lead (Pb).

The Prevention of Significant Deterioration (PSD) regulations at 40 CFR 52.21 define a "major stationary source" as any source type belonging to a list of 28 source categories which emits or has the potential to emit (PTE) 100 tons per year (tpy) or more of any attainment pollutant regulated under the Clean Air Act (CAA), or any other source type which emits or has the potential to emit such pollutants in amounts equal to or greater than 250 tpy. NGS belongs to one of the 28 listed source categories (i.e., fossil fuel-fired electric plants with heat inputs of more than 250 MMBtu/hr). It is considered a grandfathered major stationary source because the PTE for criteria pollutants exceeds 100 tpy.

Under PSD, modifications at existing major stationary sources are deemed "major" if the modification results in a significant emission increase and a significant net emissions increase for any pollutant subject to PSD. See 40 CFR 52.21(a)(2)(iv)(*a*). As shown in Table 3, the net emissions increase associated with the proposed changes at NGS exceed the PSD significance thresholds for CO. In addition, because no changes are being made to the facility's design or capacity, this project is not expected to increase emissions of any other criteria pollutants. Therefore, the proposed project constitutes a major modification only for CO and the following PSD requirements must be met:

- Application of Best Available Control Technology;
- Analysis of ambient air quality impacts from the project;
- Analysis of air quality and visibility impacts on Class I areas; and
- Analysis of impacts on soils and vegetation.

Table 3. Net emissions increase and PSD applicability

Boiler Unit	Pollutant	Net emissions increase [1] (tpy)	PSD Significance Threshold (tpy)	Triggers PSD?
1	NO_x	-(7,462)	40	No
	CO	12,190	100	Yes
2	NO_x	-(7,462)	40	No
	CO	12,190	100	Yes
3	NO_x	-(7,462)	40	No
	CO	12,190	100	Yes

[1] Net emissions increase is calculated per 40 CFR 52.21(b)(3) (see Appendix A for detailed calculations).

VI. BEST AVAILABLE CONTROL TECHNOLOGY

PSD regulations require that a Best Available Control Technology (BACT) determination be made for each pollutant subject to PSD review. Section 169(3) of the CAA defines BACT as follows:

> The term "best available control technology" means an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under the Clean Air Act emitted from or which results from any major emitting facility. The permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, makes a BACT determination through application of processes and available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of each such pollutant. In no event shall application of BACT result in emissions of any pollutant which will exceed the

emissions allowed by any applicable standard established pursuant to section 7411 (NSPS) or 7412 (NESHAP) of the Clean Air Act.

For attainment pollutants being regulated in a PSD permit, EPA evaluates emissions control requirements through a "top-down" BACT determination process. In brief, the top-down process involves ranking all available control technologies in descending order of control effectiveness. EPA first examines the most stringent technology. That technology is established as BACT unless it is demonstrated that technical considerations, or energy, environmental, or economic impacts justify a conclusion that the most stringent technology is not achievable for the case at hand. If the most stringent technology is eliminated, then the next most stringent option is evaluated until BACT is determined. The top-down BACT analysis is a case-by-case exercise for the particular source under evaluation. In summary, the five steps involved in a top-down BACT evaluation are:

1. Identify all available control options with practical potential for application to the specific emission unit for the regulated pollutant under evaluation;
2. Eliminate technically infeasible technology options;
3. Rank remaining control technologies by control effectiveness;
4. Evaluate the most effective control alternative and document results; if top option is not selected as BACT, evaluate next most effective control option; and
5. Select BACT, which will be the most stringent technology not rejected based on technical, energy, environmental, and economic considerations.

The applicant submitted a top-down BACT analysis for CO and proposed CO BACT emission limitations based on the analysis. EPA independently evaluated the information that SRP submitted and considered the following materials in identifying and evaluating available control technologies for pulverized coal-fired boilers: an EPA spreadsheet of recently permitted and proposed coal-fired power plants and EPA's RACT/BACT/LAER Clearinghouse (RBLC). EPA's BACT evaluation for CO emissions associated with the Low-NO_x Burner Project at the Navajo Generating Station is discussed below.

BACT for CO Emissions

Step 1 – Identify All Available Control Technologies

The following control technologies were identified for the control of CO emissions from pulverized coal-fired boilers: catalytic oxidation, thermal oxidation, and good combustion practices.

Step 2 – Eliminate all technically infeasible control technologies

Catalytic Oxidation

Catalytic oxidation is the technology that has been used to obtain the most stringent control level for CO from natural gas-fired turbine combustion units. This technology has never been applied to a coal-fired unit. It is evaluated here to determine if it could be considered feasible technology for application to NGS' pulverized coal-fired boilers. In this alternative, a catalyst would be situated in the flue gas stream to lower the activation energy required to convert products of incomplete combustion (CO and VOC) in the presence of oxygen (O_2) to carbon dioxide and water. The catalyst permits combination of the reactant species at lower gas temperatures and residence times than would be required for uncatalyzed oxidation.

The catalyst would have to be located at a point where the gas temperature is within an acceptable range. The effective temperature range for CO oxidation is between 600^oF and about 1,000^oF. Catalyst non-selectivity is a problem for sulfur containing fuels such as coal. Catalysts promote oxidation of SO_2 to SO_3 as well as CO to CO_2. The amount of SO_2 conversion is a function of temperature and catalyst design. Under optimum conditions, formation of SO_3 can be minimized to 5% of inlet SO_2. This level of conversion would result in a large collateral increase in H_2SO_4 emissions which aside from the increased ambient air impacts, could result in unacceptable amounts of corrosion to the fabric filter particulate collector, air preheater, ductwork and stack.

Because of this technical issue, oxidation catalysts cannot feasibly be applied to NGS' coal-fired boilers. Thus, EPA has determined that oxidation catalysts are technically infeasible for application to the coal-fired boilers at the NGS.

Thermal Oxidation

Thermal oxidation would involve injecting additional air into the flue gas and heating the oxygen enriched mixture to approximately 1,500^oF to oxidize CO to carbon dioxide. However, since the combustion of the reheat fuel would also result in CO emissions, there is no evidence that thermal oxidation would result in any CO emission reductions. Since thermal oxidation has never been demonstrated on a coal-fired boiler, and because there is no evidence that it could reduce CO emissions, thermal oxidation is not considered by the EPA to be a technically feasible CO control technology for NGS' coal-fired boilers.

Combustion Practices

Combustion control refers to controlling emissions of CO through the design and operation of the boiler in a manner so as to limit CO formation. In general, a combustion control system seeks to maintain the proper conditions to ensure complete combustion through one or more of the following operation design features: providing sufficient excess air, staged combustion to complete burn out of products of incomplete combustion, sufficient residence time, and good mixing. All of these factors also tend to reduce emissions of CO. However, this process must be optimized with the efforts to reduce NO_x emissions, which may increase when steps to lower CO are taken.

Step 3 – Rank Control Effectiveness of Technically Feasible Control Options

Based on the above analysis, good combustion practices (GCP) is the only technically feasible CO control technology for NGS' pulverized coal-fired boilers. GCP or combustion controls generally include the following components:

- Good air/fuel mixing in the combustion zone
- High temperatures and low oxygen levels in the primary combustion zone
- Overall excess oxygen levels high enough to complete combustion while maximizing boiler thermal efficiency
- Sufficient residence time to complete combustion

Step 4 – Evaluate the Most Effective Controls

Because no specific CO control technologies beyond good combustion practices were identified as part of this BACT analysis, additional evaluation is unnecessary.

Step 5 – Select BACT for CO Emissions

Listings in the RBLC indicate that recent CO BACT emission limits for new coal-fired boilers using GCP are generally 0.15 lb/MMBtu. For existing boilers being retrofitted with LNBs or other NO_x controls, CO BACT limits vary considerably from 0.15 lb/MMBtu (30-day average) to 1.63 lb/MMBtu (3-hour average). This variability is due to several factors such as furnace configurations, excess air, staging of the combustion process, coal type, etc.

Because the boilers at NGS will be retrofitted rather than being originally designed for optimum combustion as with new units, it is uncertain whether the retrofitted units can achieve the same CO emission rates as new boilers. In addition, NGS is designed as a divided furnace which means it is comprised of two furnace cells that share a common furnace wall. A divided furnace contains eight windboxes (eight burner fronts) which are located on the front and rear of the unit and off the furnace corners. Due to the geometry and aerodynamics of a divided furnace, the CO emissions typically are higher than those of a traditional four-cornered unit, all other parameters being equal.

The rank of coal can also have an effect on CO emissions. The boilers at the NGS are fueled primarily with Western Bituminous coal from the Peabody Western Coal Company's Kayenta Mine. When reducing NO_x emissions, CO emissions can be more difficult to control with this rank of coal.

Rather than setting the CO emission rates equal to the lowest proposed BACT limits for new units in the RBLC, SRP has proposed a rate of 0.42 lb/MMBtu, based on a rolling 30-day average. In order to ensure that SRP will be emitting the lowest possible CO emission limit that the units can practically achieve on a continuous basis, EPA incorporated the proposed emission rate into the permit along with language that will allow this limit to be ratcheted down after the first 18 months of operation ("Demonstration Period") once the LNB/SOFA systems were installed. After the Demonstration Period for each boiler, SRP will submit to EPA a written report together with CO CEMS data showing actual CO emissions which evaluates whether a lower CO emissions limit can be consistently and reasonably achieved while maintaining NO_x emission levels at or below 0.24 lb/MMbtu on a 30-day rolling average. The report shall provide all supporting documentation identifying the combustion characteristics that impact CO emissions and evaluate the potential for reducing the CO emission limit to a level that can be consistently and reasonably met. Within 30 days after EPA concludes in writing that the report is acceptable, SRP shall apply for a permit modification to decrease the CO emission limit.

Based on the analysis above, we conclude that the use of good combustion practices is the best available control technology for CO emissions for Boiler Units 1, 2, and 3 given the facility's specific coal and furnace design parameters. This control technology can achieve a CO emission rate of 0.42 lb/MMBtu based on a 30-day rolling average, excluding periods of startup and shutdown. For periods of startup and shutdown, BACT is also good combustion practices.

VII. AIR QUALITY IMPACTS

The PSD regulations require an air quality impact analysis to estimate the effects of the proposed project on ambient air quality. For all regulated pollutants emitted in significant quantities, the analysis must consider whether the proposed project will cause a violation of the National Ambient Air Quality Standards (NAAQS) and the applicable PSD increments; certain additional impacts must also be assessed. Below are descriptions of the general approach, air quality model selection, significant impact levels, and the project's compliance with ambient air quality standards. SRP conducted modeling of the project via a contractor, RTP Environmental Associates, and submitted a modeling report and protocol with the permit application in April 2008 (revised July 2008).

The proposed project will result in a significant increase in CO emissions. NO_x emissions will decrease, and other pollutants would have negligible changes. The project's ambient impact is above the significant impact level for CO, triggering the requirement for a cumulative impact analysis. The cumulative impact analysis SRP submitted demonstrated that the project would not cause or contribute to a violation of the 1-hour or 8-hour CO NAAQS.

EPA's conclusion is that SRP used appropriate modeling procedures and followed applicable guidance, and demonstrated that the proposed project would not violate any NAAQS or PSD increment, and will not have an adverse impact on any Air Quality Related Value (AQRV) at any Class I area.

A. Meteorological and Background Ambient Air Quality Data

The ambient impact analysis requires representative meteorological data, either 5 years of National Weather Service (NWS) data, or a year of on-site data. SRP used upper air data from Desert Rock, NV, and surface data from the nearby NWS station at Page Municipal Airport. Desert Rock is more distant than the alternative Flagstaff, AZ upper air station, but is more representative since the Flagstaff elevation is substantial different than that at the project site. Missing data at Page caused each of the 5 most recent years to be somewhat below the 90% completeness EPA threshold for acceptance. To compensate, SRP used an additional two years of data so that the total number of hours was more than would be available for 5 years at 100% completeness. SRP also checked that the missing hours were distributed roughly evenly between the different hours of the day and months of the year. Thus a full range of meteorological conditions is represented, including those with potentially high modeled impact. EPA believes that this meteorological data is representative, and that the processing procedures meet the goals of EPA guidelines for meteorological data.

The ambient impact analysis also requires representative background air quality data, to add to modeled values for comparison to the NAAQS. No CO monitor is close by, but the Page area is relatively pristine for CO; elevated CO levels are typically driven by high traffic density in large urban areas. SRP used ambient data from Maricopa County, which up until a few years ago had CO NAAQS violations; background values were 8931 $\mu g/m^3$ for the 1-hour CO NAAQS, and 6069 $\mu g/m^3$ for the 8-hour CO NAAQS. The use of these values is an extremely conservative approach that tends to overstate the cumulative impact of the proposed project.

B. Modeling Methodology

SRP modeled NGS with AERMOD, the standard EPA-recommended air quality model for permitting, with default regulatory options selected. In addition to the meteorological inputs discussed above, an air quality model needs inputs characterizing emissions sources. SRP modeled the proposed project's emissions assuming 1500 ppm CO concentration rates from each boiler, which was based on estimates by a low-NO_x burner vendor that SRP consulted, plus 50% for conservatism. Based on an "F factor" of 9780 scf/MMBtu for CO from bituminous coal (40 CFR §60, Appendix A-7, Method 19, table 19-2), this corresponds to CO emission rates of 1.24 lb/MMBtu, or 9610 lb/hr. (This is substantially higher than, though not directly related to, the proposed permit limit of 0.42 lb/MMBtu.)

SRP also used inputs for the proposed project's stack height, temperature, and exit velocity, which determine the pollutant plume's buoyancy and momentum, and hence its distance from the ground. Because these factors vary with the operating load of the source, SRP performed load screening, i.e. initial modeling to determine the worst case. SRP used AERMOD to estimate impacts under 50%, 75% and 100% load conditions; the highest impact occurred for 100% load, which was then used for the rest of the modeling.

Nearby buildings can cause downwash, in which a pollutant plume is pulled down into the building's wake, leading to high pollutant concentrations. SRP simulated this with the appropriate AERMOD model options, including effective building dimensions from the BPIP software EPA provides for the purpose.

Land surface characteristics, such as roughness, affect local meteorology. SRP used EPA's AERSURFACE program to prepare AERMET surface inputs, based on USGS National Land Cover Data. Land west of the Page, AZ meteorological station is Commercial/Industrial, while land to the east is principally shrubland, with some grassland. Terrain elevation data from USGS Digital Elevation Model files was processed through AERMAP, which computes effective heights used by AERMOD to help determine how the pollutant plume interacts with terrain features.

The final inputs are the locations, or receptors, at which the model will compute pollutant concentrations. SRP used receptors out to 40 km from the source, and additional sets of receptors that are progressively more closely spaced nearer the source, and also fence line receptors, the closest locations to which the general public has access. The receptors had 100 m spacing out to 2.5 km, 200 m spacing out to 3.5 km, 500 m spacing out to 6.5 km, 1 km spacing out to 20 km, and 2 km spacing out to 40 km. To ensure the maximum concentration was found, SRP also performed additional modeling on a fine grid with 100 m spacing centered near the maximum found on the regular grid. Because 100 m spacing is somewhat sparse for a fine grid, EPA remodeled the area of greatest impact using 25 meters (m) receptor spacing.

C. NAAQS Compliance

The proposed project's modeled impacts are shown in Table 4 below. The PSD regulations do not allow a project to cause or contribute to a violation of the NAAQS or of the PSD increment. EPA interprets this standard to be met when the applicant can show that it will not make a "significant" contribution to a violation of a NAAQS or PSD increment. That is, the applicant must show that its own impact is below the Significant Impact Level (SIL), or else show that there is no violation at locations where its impact is above the SIL. The proposed project's modeled impacts from CO exceeded the SIL, triggering the requirement for a cumulative analysis, which includes other, nearby sources. However, examination of emission inventories for nearby counties showed there were no additional sources to include. Thus, SRP used the same modeling results as for the proposed project by itself. While SRP could have used the 2nd highest value for comparing to the NAAQS, SRP continued to use the 1st high value that was used in comparing to the SIL, a conservative approach. As mentioned above, EPA remodeled the area of greatest impact using 25 m receptor spacing (Table 5). For most of the seven modeled years the impacts were nearly the same as the SRP result, but for the 2005 modeled year there was a 5% increase. Cumulative impact including background concentrations increased less than 3%.SRP's modeling analysis demonstrated that the proposed project would remain below both the 1-hour and 8-hour CO NAAQS.

Table 4. Modeled maximum project impacts using SRP modeling

Maximum Predicted Air Quality Impacts from the Proposed Project (all values in $\mu g/m^3$)						
Pollutant	Averaging Period	Modeled Impact	Significant Impact Level (SIL)	Monitored Background	Total Concentration	NAAQS
CO	1-hour	10,486	2000	8,931	19,417	40,000
	8-hour	1,749	500	6,069	7,818	10,000

Table 5. Modeled maximum project impacts, including 25 m fine grid

Maximum Predicted Air Quality Impacts from the Proposed Project (all values in $\mu g/m^3$)						
Pollutant	Averaging Period	Modeled Impact	Significant Impact Level (SIL)	Monitored Background	Total Concentration	NAAQS
CO	1-hour	11,062	2000	8,931	19,993	40,000
	8-hour	1,844	500	6,069	7,913	10,000

D. Increment Consumption Analysis and Increment Compliance

There is no PSD increment defined for CO, so no analysis is required.

VIII. ADDITIONAL IMPACT ANALYSIS

In addition to assessing the ambient air quality impacts expected from a proposed new source or modification, the PSD regulations require that certain other impacts be considered. These include impacts on growth, soils and vegetation, and visibility.

A. Growth Analysis

Since this proposed project is a retrofit to an existing source, with no changes in operations, there will be no change in the size of the work force, and no expected growth impacts.

B. Soils and Vegetation Analysis

The PSD regulations require analysis of air quality impacts on sensitive vegetation types, with significant commercial or recreational value, and sensitive types of soil. The SRP permit application stated that comparison to the NAAQS themselves can be used to assess such impacts. However, the NAAQS for CO are primary NAAQS, aimed solely at protecting human health. There is no secondary NAAQS, which would be aimed at protecting "welfare", including plants. The only available guidance for conducting the soils and vegetation analysis is in *A Screening Procedure for the Impacts of Air Pollution*

Sources on Plants, Soils, and Animals (EPA 1980). This document gives a CO screening level of 1,800,000 $\mu g/m^3$, over a one-week averaging time. The maximum cumulative impact of the project was 19,417 $\mu g/m^3$ with a 1-hour averaging time, far below the screening level. Thus, even though comparing a 1-hour average to a weekly level is a very conservative procedure, the project passes the screening test.

C. Visibility Impairment and Air Quality Related Value Analysis

Since CO has a negligible contribution to visibility impairment, no visibility analysis is required. EPA is not otherwise aware of any other Class I Area AQRV that could be affected by CO emissions. A visibility improvement is expected from the installation of the LNB/SOFA. An analysis provided by SRP for the visibility improvement as a result of the burner modifications can be found in the BART regulatory docket at: http://www.regulations.gov/fdmspublic/component/main?main=DocketDetail&d=EPA-R09-OAR-2008-0454

IX. ENDANGERED SPECIES

Pursuant to Section 7 of the Endangered Species Act (ESA), 16 U.S.C. § 1536, and its implementing regulations at 50 CFR Part 402, EPA is required to ensure that any action authorized, funded, or carried out by EPA is not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of such species' designated critical habitat.

For this proposed project, SRP submitted an "Endangered Species Act Analysis" to EPA Region 9 in April 2008 (revised July 2008). The proposed project will occur on the active plant site which is already a developed industrial area, and it is expected that the species identified in the analysis generally avoid human contact and thus avoid the facility area. EPA reviewed the analysis and has initiated informal consultation with the U.S. Fish and Wildlife Service. EPA expects to conclude the consultation process informally before a final decision is made to issue the permit.

X. CONCLUSION AND ACTION

Based on the information supplied by SRP, our review of the analyses contained in the permit application, and our independent evaluation provided above, it is our determination that the proposed project will employ BACT and complies with PSD permitting requirements. Therefore, EPA is proposing to issue SRP a PSD Permit (No. AZ 08-01) allowing a modification at the Navajo Generating Station. This permit is subject to review and comments. A final decision on issuance of the permit will be made by EPA after considering comments received during the public comment period and upon completion of the ESA consultation process.

APPENDIX A
Emissions Calculations

Salt River Project
Navajo Generating Station
Boilers - Actual to Actual Emissions Increases

		A	B	C	D	E
Pollutant	**Unit**	**Baseline Actuals[1] (tons/yr)**	**Projected Actual Emissions (w/o Adjustments) (tons/yr)**	**Projected Actual Emissions with Demand Growth but without Project Increases (tons/yr)**	**Adjustment Amount (=C-A) (tons/yr)**	**Boilers Emissions Increase (=B-A-D) (tons/yr)**
CO	Unit 1	707	12,903	713	6	12,190
CO	Unit 2	659	12,903	713	54	12,190
CO	Unit 3	675	12,903	714	39	12,190
NO_x	Unit 1	12,647	7,462	12,764	117	0
NO_x	Unit 2	11,660	7,462	12,640	980	0
NO_x	Unit 3	10,342	7,462	10,945	603	0

[1] Baseline actuals are based on average emissions from the 2006 and 2007 NGS Emission Inventory Reports (including coal and oil).